

4.5 Hypotenuse-Leg (HL) Congruence

Theorem If the hypotenuse and a leg of a right triangle are congruent to the hypotenuse and a leg of a second right triangle, then the two triangles are congruent. (p. 241)

4.6 Angle-Angle-Side (AAS) Congruence

Theorem If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of a second triangle, then the two triangles are congruent. (p. 249)

4.7 Base Angles Theorem

If two sides of a triangle are congruent, then the angles opposite them are congruent. (p. 264)

Corollary If a triangle is equilateral, then it is equiangular. (p. 265)

4.8 Converse of the Base Angles Theorem

If two angles of a triangle are congruent, then the sides opposite them are congruent. (p. 264)

Corollary If a triangle is equiangular, then it is equilateral. (p. 265)

5.1 Midsegment Theorem

The segment connecting the midpoints of two sides of a triangle is parallel to the third side and is half as long as that side. (p. 295)

5.2 Perpendicular Bisector Theorem

If a point is on a perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment. (p. 303)

5.3 Converse of the Perpendicular Bisector Theorem

If a point is equidistant from the endpoints of a segment, then it is on the perpendicular bisector of the segment. (p. 303)

5.4 Concurrency of Perpendicular Bisectors Theorem

The perpendicular bisectors of a triangle intersect at a point that is equidistant from the vertices of the triangle. (p. 305)

5.5 Angle Bisector Theorem

If a point is on the bisector of an angle, then it is equidistant from the two sides of the angle. (p. 310)

5.6 Converse of the Angle Bisector Theorem

If a point is in the interior of an angle and is equidistant from the sides of the angle, then it lies on the bisector of the angle. (p. 310)

5.7 Concurrency of Angle Bisectors of a Triangle

The angle bisectors of a triangle intersect at a point that is equidistant from the sides of the triangle. (p. 312)

5.8 Concurrency of Medians of a Triangle

The medians of a triangle intersect at a point that is two thirds of the distance from each vertex to the midpoint of the opposite side. (p. 319)

5.9 Concurrency of Altitudes of a Triangle

The lines containing the altitudes of a triangle are concurrent. (p. 320)

5.10

If one side of a triangle is longer than another side, then the angle opposite the longer side is larger than the angle opposite the shorter side. (p. 328)

5.11

If one angle of a triangle is larger than another angle, then the side opposite the larger angle is longer than the side opposite the smaller angle. (p. 328)

5.12 Triangle Inequality Theorem

The sum of the lengths of any two sides of a triangle is greater than the length of the third side. (p. 330)

5.13 Hinge Theorem

If two sides of one triangle are congruent to two sides of another triangle, and the included angle of the first is larger than the included angle of the second, then the third side of the first is longer than the third side of the second. (p. 335)

5.14 Converse of the Hinge Theorem

If two sides of one triangle are congruent to two sides of another triangle, and the third side of the first is longer than the third side of the second, then the included angle of the first is larger than the included angle of the second. (p. 335)

6.1

If two polygons are similar, then the ratio of their perimeters is equal to the ratios of their corresponding side lengths. (p. 374)

6.2 Side-Side-Side (SSS) Similarity Theorem

If the corresponding side lengths of two triangles are proportional, then the triangles are similar. (p. 388)

6.3 Side-Angle-Side (SAS) Similarity Theorem

If an angle of one triangle is congruent to an angle of a second triangle and the lengths of the sides including these angles are proportional, then the triangles are similar. (p. 390)

6.4 Triangle Proportionality Theorem

If a line parallel to one side of a triangle intersects the other two sides, then it divides the two sides proportionally. (p. 397)

6.5 Converse of the Triangle Proportionality Theorem

If a line divides two sides of a triangle proportionally, then it is parallel to the third side. (p. 397)